

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-29. (Cancelled).

30. (Currently Amended) A method for qualitative or quantitative electrochemiluminescence detection of an oligonucleotide target analyte in a sample, the method comprising the steps of:

- (a) preparing an assay mixture comprising:
 - (i) the sample,
 - (ii) one or more assay reagents comprising a labeled complex comprising an electrochemiluminescent label selected from the group consisting of ruthenium bipyridine complexes and osmium bipyridine complexes attached to an oligonucleotide probe complementary to the analyte and hybridizing therewith, the label being capable of generating a detectable electrochemiluminescent emission, wherein the labeled complex is immobilized on a magnetic particle,
 - (iii) an electrochemiluminescence quenching moiety selected from the group consisting of phenol and benzoquinone, and
 - (iv) a coreactant,
- (b) bringing the assay mixture into contact with a working electrode,

- (c) applying a potential to the electrode, thereby enabling an electrochemiluminescence reaction to proceed,
- (d) separating unhybridized labeled complex from hybridized labeled complex,
- (e) measuring the electrochemiluminescent emission produced by the label hybridized to the analyte via the oligonucleotide probe, and
- (f) correlating the measured electrochemiluminescent emission with the presence or amount of the analyte in the sample.

31. (Currently Amended) A method for qualitative or quantitative electrochemiluminescence detection of an oligonucleotide target analyte in a sample, the method comprising the steps of:

- (a) preparing an assay mixture comprising:
 - (i) the sample,
 - (ii) one or more assay reagents comprising a labeled complex comprising an electrochemiluminescent label selected from the group consisting of ruthenium bipyridine complexes and osmium bipyridine complexes attached to an oligonucleotide probe, complementary to the analyte and hybridizing therewith, the label being capable of generating a detectable electrochemiluminescent emission, the labeled complex further comprising an electrochemiluminescence quenching moiety selected from the group consisting of phenol and benzoquinone, the quenching

moiety attached to the probe, wherein the labeled complex is
immobilized on a magnetic particle, and

- (iii) a coreactant,
- (b) bringing the assay mixture into contact with a working electrode,
- (c) applying a potential to the electrode, thereby enabling an electrochemiluminescence reaction to proceed,
- (d) separating unhybridized labeled complex from hybridized labeled complex,
- (e) measuring the electrochemiluminescent emission produced by the label hybridized to the analyte via the oligonucleotide probe, and
- (f) correlating the measured electrochemiluminescent emission with the presence or amount of the analyte in the sample.

32. (Currently Amended) An assay reagent kit for qualitative or quantitative electrochemiluminescence detection of an oligonucleotide target analyte in a sample, the assay reagent kit comprising, in one or more containers in packaged combination:

- (i) one or more assay reagents comprising a labeled complex comprising an electrochemiluminescent label selected from the group consisting of ruthenium bipyride complexes and osmium bipyridine complexes attached to an oligonucleotide probe hybridizing with the analyte, the label being capable of generating a detectable electrochemiluminescent emission, wherein the labeled complex is immobilized on a magnetic particle,
- (ii) an electrochemiluminescence quenching moiety selected from the group consisting of phenol and benzoquinone, and

(iii) a coreactant.

33. (Currently Amended) An assay reagent kit for qualitative or quantitative electrochemiluminescence detection of an oligonucleotide target analyte in a sample, the assay reagent kit comprising, in one or more containers in packaged combination:

(i) one or more assay reagents comprising a labeled complex comprising an electrochemiluminescent label selected from the group consisting of ruthenium bipyridine complexes and osmium bipyridine complexes attached to an oligonucleotide probe, complementary to the analyte and hybridizing therewith, the label being capable of generating a detectable electrochemiluminescent emission, the labeled complex further comprising an electrochemiluminescence quenching moiety selected from the group consisting of phenol and benzoquinone, the quenching moiety attached to the probe, wherein the labeled complex is immobilized on a magnetic particle, and

(ii) a coreactant.

34. (New) A method for detecting an analyte in a sample composition, comprising the steps of:

(a) preparing an assay mixture comprising:

- (i) said sample composition;
- (ii) a first reagent comprising an ECL label having a chemical moiety that has electrochemiluminescent properties, which ECL label is capable of providing an observed ECL emission; and
- (iii) a second reagent having an ECL quenching moiety that, when in

quenching contact with an ECL label, attenuates the observed ECL emission thereby providing a reduced ECL emission, said ECL quenching moiety comprising at least one benzene moiety; and

- (b) detecting a difference between the observed ECL emission and the reduced ECL emission, and thereby confirming the presence of said analyte in the sample solution.

35. (New) A method according to claim 34, wherein said ECL quenching moiety comprises at least one moiety selected from the group consisting of phenol moieties, quinone moieties, benzene carboxylic acid moieties, and benzene carboxylate moieties.

36. (New) A method according to claim 34, wherein the ECL quenching moiety comprises at least one phenol moiety.

37. (New) A method according to claim 34, wherein the ECL quenching moiety comprises at least one quinone moiety.

38. (New) A method according to claim 34, wherein the ECL quenching moiety comprises at least one benzene carboxylic acid moiety.

39. (New) A method according to claim 34, wherein the ECL quenching moiety comprises at least one benzene carboxylate moiety.

40. (New) A method according to claim 34, wherein the ECL label comprises ruthenium.

41. (New) A method according to claim 34, wherein the ECL label comprises osmium.

42. (New) A method according to claim 34, wherein the ECL label comprises a

polyaromatic hydrocarbon.

43. (New) A method according to claim 34, wherein the ECL label is attached to the analyte, and the ECL quenching moiety is attached to a binding partner that binds to the analyte in quenching contact.

44. (New) A method according to claim 34, wherein the ECL quenching moiety is attached to the analyte, and the ECL label is attached to a binding partner that binds to the analyte in quenching contact.

45. (New) A method according to claim 34, wherein the analyte is selected from the group consisting of an amino acid, a protein, a glycoprotein, a lipoprotein, a saccharide, a polysaccharide, a lipopolysaccharide, a fatty acid, a nucleic acid, an antibody, an antigen, a hapten, an enzyme, a hormone, a steroid, a vitamin, an oligonucleotide, and a pharmacological agent.

46. (New) A method according to claim 45, wherein the analyte is selected from the group consisting of an oligonucleotide, a DNA molecule, an RNA molecule, a polypeptide, an antibody, an antigen, an enzyme, an enzyme substrate, an enzyme inhibitor, an enzyme agonist, an enzyme antagonist, and a polysaccharide.

47. (New) A method according to claim 34, wherein the analyte comprises an oligonucleotide, and the ECL label and the ECL quenching moiety are present on separate oligonucleotide hybridization probes, which probes bind to the oligonucleotide in quenching contact.

48. (New) A method according to claim 34, wherein the analyte comprises an oligonucleotide, and the ECL label and ECL quenching moiety are present in quenching contact on a single oligonucleotide hybridization probe that binds to the oligonucleotide, and

wherein said method further includes the presence of a DNA polymerase that is capable of degrading said hybridization probe when bound to said oligonucleotide so that the ECL label and ECL quenching moiety are no longer in quenching contact.

49. (New) A method according to claim 34, wherein the analyte comprises an oligonucleotide, and the ECL label and ECL quenching moiety are present on a single oligonucleotide hybridization probe, which probe has self-hybridization sequences and is capable of self-hybridization in the absence of said oligonucleotide, and wherein self-hybridization brings the ECL label and ECL quenching moiety into quenching contact.

50. (New) A method according to claim 34, wherein the analyte comprises an antibody to which the ECL quenching moiety has been attached, and the ECL label is attached to an antigen that binds to the antibody in quenching contact.

51. (New) A method according to claim 34, wherein the analyte comprises an antibody to which the ECL label has been attached, and the ECL quenching moiety is attached to an antigen that binds to the antibody in quenching contact.

52. (New) A method according to claim 34, wherein the analyte comprises an antigen to which the ECL quenching moiety has been attached, and the ECL label is attached to an antibody that binds to the antigen in quenching contact.

53. (New) A method according to claim 34, wherein the analyte comprises an antigen to which the ECL label has been attached, and the ECL quenching moiety is attached to an antibody that binds to the antigen in quenching contact.

54. (New) A method according to claim 34, wherein the analyte comprises an enzyme to which the ECL quenching moiety has been attached; and the ECL label is attached to a binding partner selected from the group consisting of an enzyme substrate, an

enzyme inhibitor, an enzyme agonist, and an enzyme antagonist, which binding partner binds to the enzyme in quenching contact.

55. (New) A method according to claim 34, wherein the analyte comprises an enzyme to which the ECL label has been attached; and the ECL quenching moiety is attached to a binding partner selected from the group consisting of an enzyme substrate, an enzyme inhibitor, an enzyme agonist, and an enzyme antagonist, which binding partner binds to the enzyme in quenching contact.

56. (New) A method according to claim 34, wherein the analyte comprises a binding partner to which the ECL quenching moiety has been attached, said binding partner being selected from the group consisting of an enzyme substrate, an enzyme inhibitor, an enzyme agonist, and an enzyme antagonist; and the ECL label is attached to an enzyme that binds to the binding partner in quenching contact.

57. (New) A method according to claim 34, wherein the analyte comprises a binding partner to which the ECL label has been attached, said binding partner being selected from the group consisting of an enzyme substrate, an enzyme inhibitor, an enzyme agonist, and an enzyme antagonist; and the ECL quenching moiety is attached to an enzyme that binds to the binding partner in quenching contact.

58. (New) A method according to claim 34, wherein said first reagent having an ECL label and said second reagent having an ECL quenching moiety are the same reagent.

59. (New) A method according to claim 34, wherein said first reagent having an ECL label and said second reagent having an ECL quenching moiety are different reagents.

60. (New) An assay reagent for use in the method of claim 34, said assay reagent comprising an ECL quenching moiety having at least one benzene moiety, wherein said

assay reagent is provided in a suitable container.

61. (New) An assay reagent according to claim 60, further comprising an ECL label.

62. (New) An assay kit for use in the method of claim 34, comprising the assay reagent of claim 60, and instructions for performing said method.